Small Business Innovation Research/Small Business Tech Transfer

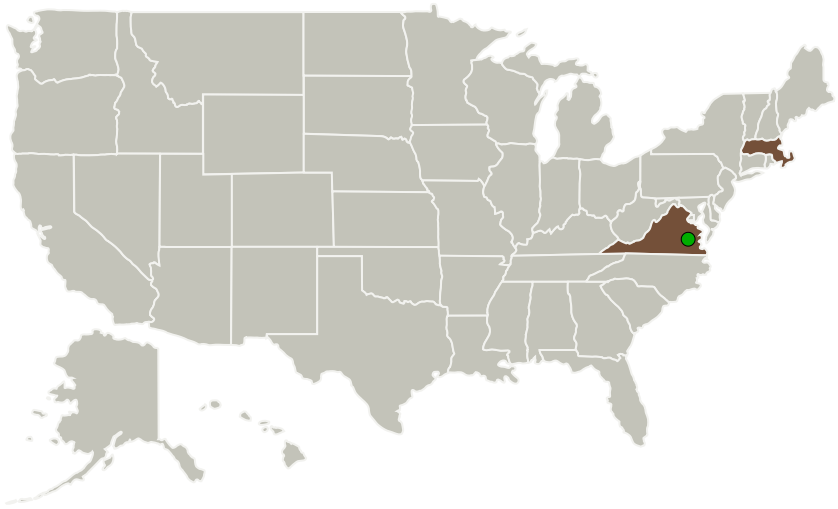
Three Color Particle Optical Extinction Monitor, Phase I

Completed Technology Project (2014 - 2014)

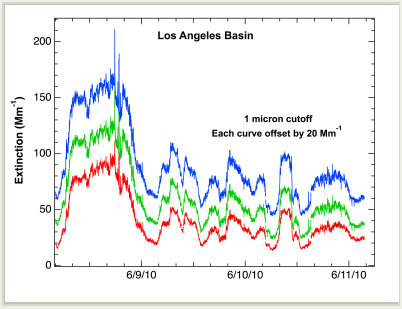
Project Introduction

We propose to design, build and test a multi-color (red, green, blue) particle optical extinction monitor suitable for use in either land or airborne applications. The monitor will also contain a fourth measurement cell to allow for real-time subtraction of interferences caused by gas phase interferents such as nitrogen dioxide. The instrument will fit into a rack-mountable box that less than 18" high (10U). Its time response will be less than 2 seconds and its precision better than 1 inverse megameter in 1 second. The accuracy of the measurements will be within ?5% of the values obtained using measurements of polystyrene latex spheres.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Aerodyne Research, Inc	Lead Organization	Industry	Billerica, Massachusetts
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



Three Color Particle Optical Extinction Monitor Project Image

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Primary U.S. Work Locations	
Massachusetts	Virginia

Project Transitions

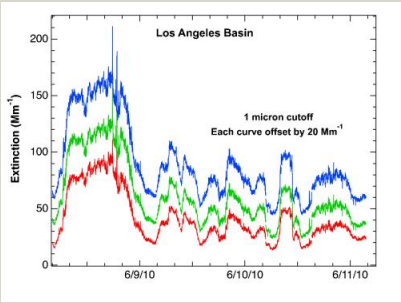
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138541)*

Images



Project Image
Three Color Particle Optical Extinction Monitor Project Image *(https://techport.nasa.gov/image/137055)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Aerodyne Research, Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Andrew Freedman

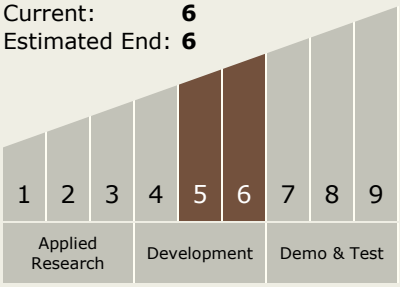
Co-Investigator:
Andrew Freedman

Three Color Particle Optical Extinction Monitor, Phase I

Completed Technology Project (2014 - 2014)

Technology Maturity (TRL)

Start: **5**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System